

O-S-571F
August 1, 1969
SUPERSEDING
Fed. Spec. O-S-571E
August 11, 1960

FEDERAL SPECIFICATION

SODIUM CARBONATE, ANHYDROUS, TECHNICAL

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. this specification covers four types of technical grade anhydrous sodium carbonate (hereinafter referred to as sodium carbonate).

1.2 Classification. Sodium carbonate shall be of the following types as specified (see 6.2):

- Type I - Ordinary or Light ash.
- Type II - Medium ash.
- Type III - Dense or heavy ash.
- Type IV - Briquets.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

- QQ-S-781 - Steel Strapping, Flat.
- VV-L-800 - Lubricating Oil, General Purpose, Preservative (Water-Placing, Low Temperature).
- PPP-B-35 - Bags, Textile, Shipping, Burlap, Cotton and Waterproof Laminated.
- PPP-B-566 - Boxes, Folding, Paperboard.
- PPP-B-585 - Boxes, Wood, Wirebound.
- PPP-B-601 - Boxes, Wood, Cleated-Plywood.
- PPP-B-521 - Boxes, Wood, Mail and Lock Corner.
- PPP-D-705 - Drum: Metal Shipping, Steel (Over 12 and Under 55 Gallon).
- PPP-D-729 - Drums: Metal, 55-Gallon (For Shipment of Noncorrosive Materials).
- PPP-F-320 - Fiberboard; Corrugated and Solid, Sheet Stock (Container Grade, and Cut Shapes).
- PPP-P-704 - Pails, Metal: (Shipping, Steel 1 through 12 Gallon).

Federal Standard:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlines under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplement as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, Washington.

(Federal Government activities may obtain copies of Federal Specification, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.

Military Specifications:

- MIL-B-117 - Bags, Sleeves and Tubing - Interior Packaging.
- MIL-P-15011 - Pallets, Material Handling, Wood, Post Construction, 4-Way Entry.

Military Standards:

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized and Containerized Unit Loads, 40" x 48" 4-Way (Partial) Pallet Skids, Runners, or Pallet-Type Base.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

Laws and Regulations:

Code of Federal Regulations:

- 49 CFR 171-179 - Department of Transportation Rules and Regulations for the Transportation of Explosives and Other Dangerous Articles.

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. government Printing Office, Washington, D.C. 20402. We indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

2.2 Other publication. The following documents form a part of this specification to the extent specified herein. Unless a specified issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

Uniform Classification Committee:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 West Jackson Boulevard, Chicago, Illinois 60606.)

National Classification Board:

National Motor Freight Classification.

(Application for copies should be addressed to the National Classification Board, 1616 F Street, N.W., Washington, D.C. 20036.)

American Society for Testing and Materials (ASTM) Standard:

D- 501-67 - Sampling And Chemical Analysis of Alkaline Detergents.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

3. REQUIREMENTS

3.1 Chemical and physical characteristics. Sodium carbonate shall conform to the applicable chemical and physical characteristics of table I when tested as specified therein.

3.1.1 Weight of briquet (type IV). Twenty five briquets shall weigh 16 ounces (oz.) +/- one oz. when tested as specified in 4.2.4.5.

TABLE I. Chemical and physical characteristics

Characteristics	Type I	Type II	Type III	Type IV	Test paragraph
Loss on heating, maximum percent by weight	1.0	1.0	1.0	1.0	4.2.4.1
Water-insoluble matter in dried material, maximum percent by weight	0.25	0.25	0.25	0.25	4.2.4.2
Total alkalinity in dried material, minimum percent by weight	99.2	99.2	99.2	98.0	4.2.4.3
Apparent density pounds per cubic foot	29 to 37	42 to 62	54 to 75	-----	4.2.4.4

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection

requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that suppliers and services conform to prescribed requirements.

4.2 Quality conformance inspection.

4.2.1 Lotting. A lot shall consist of the sodium carbonate, of one type, produced by one manufacturer, at one plant, from the same materials, and under essentially the same manufacturing conditions provided the operation is continuous. In the event the process is a batch operation, each batch shall constitute a lot (see 6.3).

4.2.2 Sampling.

4.2.2.1 For examination of preparation of delivery. Sampling for examination of preparation for delivery shall be conducted in accordance with MIL-STD-105.

4.2.2.2 For test. Sampling for test shall be conducted in accordance with table II. A representative specimen of approximately 1 pound (lb.) of type I, II, or III sodium carbonate or approximately 2 lb. of type IV sodium carbonate shall be removed from each sample container and placed in a suitable clean, dry, closed container labeled to identify the lot and container from which it was taken.

TABLE II. Sampling for test

Number of containers in batch or lot	Number of sample containers
2 to 25	2
25 to 150	3
151 to 1,200	5
1,201 to 7,000	8
over 7,000	10

4.2.3 Inspection procedure.

4.2.3.1 For examination of preparation for delivery. The sample unit shall be one filled unit or shipping container, as applicable, ready for shipment. Sample containers and the preparation for delivery thereof shall be examined for the following defects using an AQL of 2.5 percent defective.

- (a) Contents per container not as specified.
- (b) Container not as specified.
- (c) Container closure not as specified.
- (d) Container damaged or leaking.
- (e) Interior bag not as specified.
- (f) Interior bag closure not as specified.
- (g) Wood preservation incorrect or missing (type IV, level A only).
- (h) Marking incorrect, missing, or illegible.

4.2.3.2 For test of types I, II, and III sodium carbonate. Approximately equal portions of all of the specimens taken in 4.2.2.2, shall be thoroughly mixed to form a composited specimen of no less than 1 pound. The composited specimen shall be tested as specified in the applicable portions of 4.2.4. Each test shall be conducted in duplicate analysis. Failure of either analysis of any test shall be cause for rejection of the lot represented.

4.2.3.3 For test of types IV sodium carbonate. Twenty-five briquets of each specimen taken in 4.2.2.2 shall be tested as specified in 4.2.4.5 Failure of any specimen material shall be cause for rejection of the lot represented. The remaining specimen material shall then be composited and tested as specified in 4.2.3.2.

4.2.4 Test. Tests shall be conducted as follows:

4.2.4.1 Loss on heating. Determine percent loss on heating in accordance with ASTM D 501-67, sections 17 and 18.

4.2.4.2 Total alkalinity. Dry approximately 2 g. of the specimen for 1 hour at 150 deg. to 155 deg. C. and then determine percent alkalinity in accordance with ASTM D 501-67, sections 19, 20 and 21.

4.2.4.4 Apparent density. Determine apparent density in accordance with ASTM D 501-67, sections 30 and 31.

4.2.4.5 Weight of briquets (type IV). Weight 25 briquets collectively to the nearest 0.1 oz.

5. PREPARATION OF DELIVERY

5.1 Packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A. Five lb. +/- 1/2 oz. of type I, II, or III sodium carbonate shall be packaged in paperboard box conforming to variety 2, style I, type A, B, single wax dipped of PPP-B-566. The box shall be closed as specified in the appendix to PPP-B-566.

5.1.2 Level C. Five lb. +/- 1/2 oz. of type I, II, or III sodium carbonate shall be packaged in a paperboard box conforming to variety I, style I, type optional, class B of PPP-B-566. The box shall be closed as specified in the appendix to PPP-B-566.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

5.2.1 Level A.

5.2.1.1 Five-lb. quantities. Twelve boxes of sodium carbonate, packaged as specified in 5.1.1, shall be packed in either a nailed wood box conforming to class 2, style 4 or 4-1/2, for a type 2 load of PPP-B-621; a cleated-plywood box conforming to type overseas, style I or J, for a type 2 load of PPP-B-621; or a wirebound wood box conforming to class 3, style optional, for a type 2 load of PPP-B-585. The box shall be closed and reinforced in accordance with the requirements in the appendix to the applicable box specification.

5.2.1.2 Twenty-five-lb. quantities. Twenty-five +/- 1/4 lb. of type I, II, or III

sodium carbonate shall be packed in a metal pail conforming to type II, class 4 of PPP-P-704 with a heat sealable, interior packaging bag conforming to type I, class B, style 2 of MIL-B-117. The interior surfaces of the pail shall be fog sprayed with a rust-preventative oil conforming to VV-L-800 which shall be applied in compliance with the requirements specified in PPP-D-705. Closure of the interior bag shall be accomplished by heat sealing or by twisting the open end of the bag and tying it in a knot. Closure of the pail shall be in compliance with the appendix to PPP-P-704.

5.2.1.3 One hundred-lb. quantities. One hundred +/- 1/2 lb. of type I, II, or III sodium carbonate shall be packed in a 25-gallon, fully removable head metal drum conforming to Department of Transportation (DOT) specification 17H, with a heat-sealable interior surfaces of the drum shall be treated as specified in 5.2.1.2 Exterior surfaces of the drum, including the cover and bottom head shall be coated and painted as specified for the drums of PPP-D-729. Closure of the interior bag shall be as specified in 5.2.1.2 Closure of the drum; shall be in compliance with DOT requirements.

5.2.1.4 Three hundred-lb. quantities. Three hundred +/- 1 lb. of type I, II, or III sodium carbonate shall be packed in a 55-gallon, fully removable head metal drum conforming to type IV of PPP-D-729 with a heat-sealable interior packaging bag conforming to type I, class B, style 2 of MIL-B-117. The interior surfaces of the drum shall be fog sprayed with a rust-representative oil as specified in PPP-B-729. Closure of the bag shall be as specified in 5.2.1.2. Closure of the drum shall be in compliance with PPP-D-729.

5.2.1.5 Briquets. Fifty lb. of type IV sodium carbonate shall be packed in a heat-sealable bag conforming to type I, class B, style 2 of MIL-B-117. The filled and sealed bag shall be packed in a cleat-plywood box conforming to type overseas, style I or J of PPP-B-601 having a fiberboard liner constructed of material conforming to type CF, grade W5c of PPP-F-320. The liner shall completely separate the bagged contents from the surfaces of the box. Closure and reinforcement of the box shall be in compliance with requirements in the appendix to PP-B-601. Unless otherwise specified, all unfinished, unpainted wood parts, including cleat, shall be treated with water-repellent wood preservative as specified for the plywood panels in PPP-B-601.

5.2.2 Level B. 100-lb quantities. One hundred lb. of type I or II sodium carbonate as specified (see 6.2), shall be packed in sack conforming to PPP-B-35 for civilian domestic use.

5.2.3 Level C. Quantities of sodium carbonate as specified (see 6.2), of the type specified (see 6.2), shall be packed in containers which comply with the requirements of the Uniform Freight Classification or National Motor Freight Classification rating, rules, and regulations, as applicable, or other carrier rules as may be applicable to the mode of transportation. Containers shall be capable of being stacked and of supporting superimposed loads during shipment and shall assure safe delivery of destination without damage to contents.

5.3 Marking. In addition to the marking specified in 5.3.1 and any marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129 or Fed. Std. No. 123, as applicable (see 6.2).

5.3.1 Precautionary marking. All containers shall be durably and legibly marked as follows:

AVOID INHALATION OF DUST
AVOID CONTACT WITH SKIN AND EYES

5.4 Palletization. When specified in the contract or order, shipping containers shall be palletized as specified below. Unless otherwise specified, pallets and associated wood storage aids shall be treated with wood preservative as specified in MIL-P-15011 (see 6.2).

5.4.1 Twenty-five-lb. quantities. The 25-lb containers of sodium carbonate shall be palletized in three rows of four containers each, in four tiers, on a style 1, type I, class 1 pallet of MIL-P-150111 with top and bottom caps. Strapping shall conform to type 1, class B of QQ-S-781 and top of the top cap and under the deck boards of the pallet in the 40-inch direction, and horizontal strapping running completely around each tier of containers as specified for load type III in MIL-STD-147.

5.4.2 One hundred-lb. quantities. The 25-gallon drums shall be palletized on a style 1, type I, class 1 pallet of MIL-P-15011 in accordance with the requirements for load type XII. Drums shall be positioned so as to attain maximum utilization of the 40- by 48-inch pallet and shall not exceed a height of 54 inches. Unitizing strapping shall conform to type 1, class B of QQ-S-781, 1.25 inch by 0.035 inch.

5.4.3 Briquets. Boxes containing type IV sodium carbonate shall be palletized on a style 1, type I, class 1 pallet of MIL-P-15011 in accordance with the container pattern in the appendix of MIL-STD-147 most effective for attaining maximum utilization of the 40- by 48-inch pallet. One horizontal strap of 0.75-inch by 0.023-inch galvanized steel, conforming to type 1, class B of QQ-S-781 shall be applied to each tier and three primary tie-down straps. Galvanized straps of 1.25-inch width and 0.035 inch thickness conforming to type 1, class B of QQ-S-781 shall be equally spaced and shall run across the top of the load and under the deck board of the pallet in the 40-inch direction.

6. NOTES.

6.1 Intended use. The sodium carbonate covered by this specification is intended for various washing, cleaning, and scouring processes, with or without soap, as conditions may require when a moderately strong alkaline material is desired, and for the treatment of water. This specification is not intended to apply to soda ash in glass making.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type of sodium carbonate required (see 1.2).
- (c) Level of packaging and packing required (see 5.1 and 5.2).
- (d) Unit quantity required (see 5.1 and 5.2).
- (e) Additional marking, if required (see 5.3).
- (f) Palletization and preservation thereof, if required (see 5.4).

6.3 Batch. A batch is defined as that quantity of material which has been manufactured by some unit chemical process or subjected to some physical mixing operation intended to make the final product substantially uniform.

6.4 Significant places. For the purpose of determining conformance with this specification, an observed or calculated value shall be rounded off "to the nearest unit" in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding-off method of the Recommended Practices for Designating Significant Places in Specified Limiting Values (ASTM E 29).

MILITARY INTEREST:

Custodians:

Army - MU
Air Force - 68

Preparing activity:

Army - MU(EA)

Review activities:

Army - MD, ME, MU (FA)
Air Force - 68
DSA - GS

CIVIL AGENCIES INTEREST:

COM
FAA
GSA
INT
NASA
TR
VA

User activities:

Army - SM
Navy - MC, OS, SH, YD

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 10 cents each.

O-S-571F
Interim Amendment-1 (GSA-FSS)
January 2, 1973

INTERIM AMENDMENT

TO

FEDERAL SPECIFICATION

SODIUM CARBONATE, ANHYDROUS, TECHNICAL

This interim amendment was developed by the Standardization Division, Federal Supply Service, General Services Administration, Washington, DC 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized the use of this interim amendment as a valid exception to Federal Specification O-S-571F, dated August 1, 1969.

PAGE 1

Paragraph 2.1, under "Federal Specifications," add the following:

UU-S-48 - Sacks, Shipping, Paper.
PPP-P-001660 - Pallet, Expendable.
PPP-S-760 - Strapping, Nonmetallic, (And Connectors).

PAGE 4

Paragraph 5.2.2 - Delete and substitute:

"5.2.2 Level B. 100-lb quantities. One hundred pounds of sodium carbonate shall be packed in a bag conforming to PPP-B-35, type III, or in a sack conforming to UU-S-48 for soda ash."

PAGE 5

Add new paragraph:

"5.4.2.1 When specified (see 6.2), sacks of sodium carbonate shall be packed on a pallet conforming to PPP-P-001660 type II, style optional, class B or C, grad 2, size - any size except h. The load shall be secured to the pallet with flat steel of non-metallic strapping conforming to QQ-S-781 or PPP-S-760. When steel strapping is used, metal plastic or fiberboard edge protectors shall be placed ;under the strap at the edge point. A minimum of two straps shall be placed around the top, bottom and sides of the load and two straps around the top, bottom and ends of the load. Steel strapping applied to a load at right angles to each other and in the same plane shall be prevented from lateral movement and displacement by the application of steel

crossties of a size appropriate for the flat steel strapping used. Alternatively, the load shall be secured to the pallet by the shrink film process. Thermoplastic films of 6 mil. polyethylene, 5.5 mil. reinforced polyethylene, or 2.5 mil. polyvinyl chloride shall be used. Shrinking of the film shall be in accordance with industry practice.

Preparing Activity:

GSA-FSS